P.3 Integration from Molecules to Ecosystems: An Environmental and Social Science Model for Long-Term Stewardship

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Abstract

Over the past seven years, through DOE support, the Center for Bioenvironmental Research (CBR) has developed a natural laboratory for development of new biosensor and biomarker technologies and a program for risk evaluation and communication. In addition, the CBR is conducting research on receptor-based methods, such as endocrine disruption, for assessments of how environmental “signals” affect long-term human, ecological, and ecosystem health. The CBR has leveraged these capacities into an integrated program focusing on 1) development of long-term risk assessment models for contaminant mixtures at selected DOE sites, 2) analytical capabilities to support the long-term risk assessment and management foci, 3) food-web modeling, 4) ecological biomarker sentinels for contaminant exposure, 5) biosensor technology development, 6) environmental informatics and geographic information systems, and 7) risk communication with a special focus on Native American tribes and other underserved populations. The CBR’s goal is to effectively position the DOE as a leader in the complex emerging field of environmental signaling.